CFTRI LICENCEES.

REPORT OF

TECHNOLOGY STATUS SURVEY

(CFTRI Licencees)

Industrial Development & Consultancy Services

CENTRAL FOOD TECHNOLOGICAL
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Introduction:

Since inception, CFTRI has developed 241 processes, out of which 100 of them have already been released to industry. Some of these processes are known to be in use, while the performance and continuance of others is uncertain, as no reliable feedback was forthcoming. Moreover, some of the processes have since been improved upon by the R&D scientists which could be beneficially incorporated or adopted by the processors. Further, a few of the industrialists are unable to fully utilise the target capacity due to various reasons, which require thorough investigation so that some remedial measures could be thought of.

The present study is an attempt at an analysis of the status of technologies released to parties the constraints, technical or otherwise, faced by the parties, if any which is expected xx to serve as a feedback for consultancy and R&D personnel.

Methodology

Initially, the State Govt. Departments, S.I.S.I. and other agencies connected with promotion and development of food and allied industries were identified and necessary interactions were held with the above. Besides, the existing network available with PTC and CFTRI Experiment Stations were utilised for a wider coverage.

For purpose of convenience, the country was broadly divided into 4 regions and concentrated efforts were directed by each group to interact with the respective regions.

A prequestionnaire survey was undertaken by visits to few local licencees in Mysore. Based on the same, a suitable questionnaire was drafted and tested with

representative units for different processes. Two separate questionnaires were standardised - one for processes/techniques and other for design drawing offered for equipments and machinery manufacture.

The list of licencees were updated from files available with IDCS and they were classified statewise and processwise.

The addresses of all the licencees was made available from the technology transfer files, wherein the list of addresses of the licencees who have taken the process from CFTRI till 1981 were prepared and updated. The regionwise list was made available.

For the purpose of the survey, the team was divided into 4 groups, each entrusted with specific regions, south, north and northeast, south-west, east. All the licencees were contacted by mail questionnaire a few local as well as a few units located near the concerned experiment stations were contacted personnally. Total response was about 27%.

Summary of the results obtained

There are 467 licencees of CFTRI processes, to whom 100 processes have released, other than the several units to whom processes have been released free of charge or training given.

Maximum number of licencees are in Karnataka (25%) followed by Tamilnadu (16%), Kerala (13%) and Andhra Pradesh (13%). These four states together has 67% of the licencees.

Of the total processes released maximum number of licencees are in the area of equipment and machinery (18%), followed by plantation products (17%), fruit and vegetables (13%).

Of the total respondents 44% of them belong to small scale industry. 10% in the service organisations like Banks, Cooperative Societies, etc. 5% of the licencees have registered with DGTD. 4% in the large scale and medium scale together and 2% in the cottage scale. The rest have not mentioned the category of registration.

25% of the units who have sent responses are reported to be in production and 4% of CFTRI licencees are exporting their products.

Most licencees have employment potential of less than 10 persons. Only 5% of CFTRI licencees are engaging more than 50 persons.

Problems faced by CFTRI licencees

From the overall analysis it has been observed that technology does not form the main constraint.

About 50% of the industrial units who have replied have mentioned the lack of demand/market for the product as the main problems.

36% of the respondents have problems connected with machinery and equipments. The nature of problems are varied. The common being problem in fabrication of machinery, equipment performance/ unsuitability and failure to utilise the capacity due to machinery defect.

Another problem referred by the Industrial units is the high price of the product when compared to the competitors similar product or substitutes.

About 15% of the industrial units have mentioned the different ways in which* Government quota of raw materials, obtaining licence for manufacture, Governments lag in accepting CFTRI products in place of existing, for Government purchase programme. Government's import-export policy has affected in allowing imports certain products to India which in turn affects the market for indigenous products. Major problem faced by the exporters are high price of Indian product as compared to international prices.

Some of the other problems mentioned are packaging problems, low shelf-life and bad quality of end product. By-product utilisation all of these problems are technical problems, hence the product/process needs improvement.

Some processes also have problems in getting the basic raw material for processing.

Few units have also mentioned power cut as one of the problem.

* policy/regulation have affected the industry. Few of the problems are non-availability of

ANIMAL PRODUCTS

Totally 40 processes has been developed in this area of which 7 processes has been released to 16 industrial units.

Following table gives the statewise distribution of the processes released:

States	Process released	No. of Licencees
Maharashtra	4	4
Andhra Pradesh	3	4
Karnataka	2	4
Kerala	2	2
Delhi	1	1
Punjab	1	1
Total	7	16

Of the 7 processes released two are meat based. Both licencees are in Kerala one in the DGTD sector which is in production. Process based on egg (4) have been released to 12 parties; of the 6 respondents 3 are in production; two units at Bombay and one at Ludhiana.

Following table gives the name, process and the number of industrial units to whom it has been released.

	No. of Licencees	No.of units in production
Concentrated meat gravy	1	1
Canned beef	1	Nil
Egg albumin flakes	7	2
Egg coating oil	2	Nil
Egg powder	1	1
Egg washing powder	2	Nil
Fish meal and oil	2	2
Total	16	6

Technical problems

Both the units have reported that screw process performance is not satisfactory and that the process does not give continuous performance. One unit feels that double screw process design would give better performance.

Concentrated meat gravies

One unit is in production and no problem has been referred.

Corned beef

Released to one industry, this Industry has stopped production. And no further information has been furnished.

Egg coating oil & egg washing powder

There is no response. The process has been released to two parties each.

The list of units in production is given in Annexure.

BEVERAGE PRODUCTS

Totally 18 processes have been developed in this area. Of these processes, 8 processes are fruit/ fruit flavour based.

Of the total 18 processes, 9 have been released to 26 industrial units. Tamil Nadu having utilised the maximum number of process (6). Statewise distribution is as below:

State	Process released	No. of Industrial units
Tamilnadu	6	9
Karnataka	4	6
Andhra Pradesh	2	2
Madhya Pradesh	2	2
Delhi	1	1
Gujarat	1	1
Kerala	1	3
Maharashtra	1	1
West Bengal	1	1
Total	9	26

Processes released	No. of licencees	No. of units in production
Cashewapple juice blends	2	Nil
Cola flavour blend	1	1
Ginger cocktail	2	Nil
Honeybased beverage	2	Nil
Liquid fruits .	8	1
Malted beverage	4	Nil
Malted milk powder & allied products	2	Nil
Orange and lime/lemon flavour blends	3	1
Pansupari nectar	2	Nil
Total	26	3

In the case of cashewapple juice blends and malted beverage, there was no response. In the case of pansupari nectar, which was released to 2 units in the year 1964 could not be traced. The addresses of units in production is given in annexure.

The specific problems in each process is given in the tables

Processing of cereals, millets and pulses

Totally 22 processes have been developed and released to 21 units. Of these, instant mixes of dosai, idli, jamun jilebi and vadai have been released to 17 parties. Instant rasam and sambar mixes have been released to 2 parties. These two processes together form the major part of the licencees. Ragi-based weaning food has been released to two industrial units.

The Statewise distribution of these processes is as under:

	Process*	Industrial units
Karnataka	3	10
Maharashtra	2	3
Tamilnadu	1	4
Andhra Pradesh	1	1
Haryana	1	1
Jammu and Kashmir	1	1
Himachal Pradesh	1	1
Total	3	21

* Instant mixes of dosai, idli, jamun, jilebi, vadai } All these have been treated as one process

* Instant rasam, instant sambar } Treated as one process.

	No. of licencees	In production
Instant mix (dosai, idli, jamun, jilebi, vadai)	17	3
Instant rasam and instant sambar mix	2	1
Ragi based weaning food	2	Nil
Total	21	5

It may be noted that of 17 licencees of instant mixes, all the 3 units that are in production (one of them is also exporting its products) have taken the process during the year 1965-66. The process was first released in the year 1965. One reason for success of these industries could be its early entry into the market. Western India Bakers who have taken the process in 1976 were in production till 1978, and have stopped production since 1978. Out of the three units in production, 2 of them have engaged consultants in the area of marketing and all of the 3 units have engaged stockists/selling agents. Some of the major problems faced by the manufacturers are :

Almost all the units who have referred the problem have said that packaging/storage was one of the major problems. The nature of problems are non-availability of required quality of packaging material and high cost of packing which makes the product expensive.

Again the manufacturers feel that the shelf-life should be increased. This problem is also referred by almost all the respondents. One industry has mentioned that fumigation during the process is difficult. In the case of rasam or sambar mix the unit feels that the mix does not give thick rasam/sambar. All the units who have responded are in the small scale sector, it has been mentioned that it is very difficult to meet the marketing expenses for selling a consumer product of this nature by small scale industry.

Apart from the above major problems referred, some of the other comments are (1) unsuitability of equipment to the capacity; (2) costing given by CFTRI is far from actual; (3) any improvement in the process should be given to the licencees free of cost; (4) training in fumigation

is required.

Ragi-based weaning food released to 2 industrial units, one unit has replied and has not commenced production. In the area of processing as cereals, millets and legumes process such as (a) curing of paddy (b) harvesting index for paddy (c) improvements in papads (d) malting of millets are in practice. These processes were demonstrated to probable uses and are expected to be in use.However , these processes could not be taken for the present survey since no records are available on addresses of users of these processes.

DISINFESTATION PROCESS

Totally 18 processes have been developed in this area. Of these 7 processes have been released to 27 industrial units and the statewise breakup is given below:

	Process	Industrial unit
Karnataka	5	9
Andhra Pradesh	2	2
Maharashtra	2	2
Tamilnadu	1	4
Delhi	1	1
Gujarat	1	4
Orissa	1	2
Utter Pradesh	1	1
West Bengal	1	1
Total	7	28

The processes such as durofume process, high molecular weight, HDPE structure , x-factors has been demonstrated to the users and are being practised. Our survey has not included these processes because of non-availability of any records giving the addresses of users.

Of the 7 processes released to 27 units, lindane itself was released to 20 industrial units. The processwise break-up is given below:

	No. of licencees	In production/ use
Lindane	20	2
Pest proof emulsion for insect proofing of gunny bags	2	Nil
Ballancing process for storage of coffee	1	1
Durobase formulation	1	Nil
Durofume formulation	1	1
Household insecticide	1	Nil
Methyl bromide	1	Nil
Total	27	4

In the case of lindane two addresses were not traceable. Among the respondents, 2 units are reported to be in production.

All the respondents have mentioned that the main problem isthe high cost of production since (a) the yield is less than that was mentioned in patent (b) cost of raw material used for production has increased but price of lindane has not (c) consumption of rectified spirit is too high.

Some of the other problems mentioned by the manufacturers are non-availability of alcohol from Govt. One unit has said that it is very difficult to get insecticide board certificate from Govt. The price of the end product is very high and hence it effects the market.

Ballooning process for storage of coffee has been released to Indian Coffee Board. The process is being utilised for storage of coffee in the coastal areas.

Durofume formulation has been released to one unit in the small scale industry and is reported to be in production. The unit has referred a number of technical and non-technical problems.

Technical:

1. As per explosives act MB and EDB should not be mixed in cylinder. Hence a new device is necessary for the same.
2. Shelf-life of the product not good because of can quality, hence shelf life cannot be guaranteed.
3. There is leakage since packing cannot be perfect.

Other problems referred:

1. Filling licence is required for explosive department which is difficult to obtain.
2. Other fumigants that are available in market are cheaper.
3. There is no Govt. patronage who are the bulk buyers the unit feels that CFTRI could recommend the use of durofume by Govt. organisations.

Household insecticide and methyl bromide was released to one unit each. In the case of household insecticide there was no response and in the case of methyl bromide the unit has replied that the process is not being utilised without attributing reason for non-utilisation.

EQUIPMENT AND MACHINERY

Totally 25 processes have been developed, of which 20 processes have been released to 172 licencees. The statewise break-up figures is as below:

	Processes released	No. of licencees
Karnataka	10	45
Maharashtra	8	29
Tamilnadu	5	23
Andhra Pradesh	4	18
Delhi	4	6
Other States	-	51
Total	20	172

The maximum number of licencees are in the area of leaf-cup making machine. The processwise break-up is as below:

	No. of licencees	In production/ use
Aflatoxin filter	3	Nil
Cashew kernel drier	1	Nil
Citrus juice extractor	1	1
Concentratorfor tomato puree	1	Nil
Desiccated coconut drier	2	Nil
Double cone vacuum drier	1	1
Fluidized bed drier	2	Nil
Ghee testing kit	1	Nil
Improved coffee filter	1	1
Improved spin cooker/cooler	1	Nil
Improved vacuum tester	1	Nil
Leaf cup making machine	70	4

Maize mill	27	2
Mini rice mill	38	8
Modern dhal mill	5	Nil
Parboiling tank	13	2
Rice bran stabiliser	1	Nil
Tomato juice concentrator	1	Nil
Tunnel drier	1	1
Vacuum evaporator	1	Nil
Total	172	20

The licencees of equipment and machinery can be divided into 3 types, first category being units who have taken the licence with intension of fabricating the machinery for other users; 2nd category are licencees who are the actual users; and 3rd category are the social/ service organisation also have taken the licencees for demonstrations/training etc. The problem referred by these group of licencees differs.

The actual users have very often mentioned fabrication of machineryitself as one of the major problems, due to lack of technical skill and facilities.

It may be noticed from the above table that licencees of leaf cup, maize mill and mini rice mill together constitute more than 40% of total.

In the case of leaf cup making machine it has been noticed that a number of organisations like banks/ financial organisations, cooperative societies have taken the process. But none of them has utilised the process nor has been able to convince/popularise the process among the clients. The organisationshave not been able to popularise the process because of lack of inability to convince the prospective users regarding the

market for leaf cups.

Among the actual users and fabricators the common problem referred is lack of market and in majority of cases among the actual user the fabrication of machinery itself has been one of the reasons for not utilising the process.

In the case of maize mill with destoner the process has been taken by one group of licencees for manufacture of maize products and another group for fabricating the machinery for sale. Among the first group, there are no licencees who is utilising the process for manufacture of maize products. In the case of fabricators of machinery only destoner has been successfully fabricated. A few technical problems and suggestions for improvements have been indicated by the licencees.

In the case of mini rice mill almost all the respondents have taken the process for fabricating the machinery for sale. Majority of the respondents have mentioned that technical knowhow provided was insufficient and also that mini rice mill manufactured using CFTRI knowhow is not upto satisfaction. A few units have mentioned that lack of Govt. of policy in modernising the rice mill has affected the market for the product.

The problems referred by other processors are varying in nature and as given in the tables.

FRUIT AND VEGETABLE

32 processes have been developed in fruit and vegetables. 10 processes have been released. However, this does not include processes like (a) antifungal paste, banana chips, cartons for banana, cartons for oranges, dehydrated mango slices, dehydration of vegetables, fruit syrups and squashes, fruit jams, fruit toffees, hot dip treatment for mangoes, mushroom, potato chips, processing of litchi, pickles and chutneys, refrigerated storage of fruit and vegetables, sun drying of grapes. All these processes have been demonstrated to different parties and are being practised/used.

It may also be noted that for the study purposes, papain crude and BP grade together is treated as one process, IP and concentrate together has also been treated as one process.

The process is utilised by 49 licencees. The Statewise breakup of process utilisation is as below:

	Processes released	Industrial licencees
Andhra Pradesh	4	11
Maharashtra	4	18
Tamilnadu	4	5
Karnataka	3	6
Kerala	2	3
Gujarat	2	2
Madhya Pradesh	1	1
U.P.	1	2
Total	10	49

Maximum number of licencees are located at Maharashtra

The processwise breakup is as below:

	No. of licencees	Units in production
Fruit bar	21	-
Fruit juice powder	1	-
Mango cereal flakes	2	-
Mushroon *	1	1
Oil citrates and pectin from lime	3	1
Papain (Crude & BP grade)	12	-
Papain (IP and Concentrate)	1	-
Pectin from pectinaceous material	4	2
Wax emulsion	3	-
Total	49 licencees	4

* Only one recorded several other parties have taken the process.

It may be noted that a number of processes developed has not been taken into account for the present survey. Such processes are 19 in number. These processes consists of mainly improvements made over already existing process which have been released on training imparted

The maximum to number of licencees are in the area of fruit bars. A number of technical problems have been referred by 2 units which were reported to have been in production. The common problems referred are the problem of (1) storing pulp (2) details about packing which were given, according to the unit was not sufficient and hence

problem of storage of end product in humid climates, (3) drying the product in tray dryer is very costly, (4) cutting the product to desired size was difficult. Other than the above technical problems referred it is reported there are a number of cottage scale units processing fruit bars, with whom it is difficult to compete due to high price of the fruit bars made by CFTRI process.

The problems refered by the unit who has utilised the process 'oil citrates and pectin from lime' and also is reported to be in production are low yield of pectin, low shelf-life of lime oil and poor solubility of the pectin.

In the case of papain major problems faced by the industry is the non-availability of papaya latex due to tapping problem.

Tables in annexure gives the list of problems referred by the licencees and the list of units who have replied.

MICROBIOLOGY AND FERMENTATION

Totally 12 processes have been developed, of which 8 processes have been released. The processes are utilised by 18 licencees, the statewise breakup is as below:

	Processes released	Industrial licencees
Karnataka	5	8
Kerala	3	4
Tamilnadu	2	2
Andhra Pradesh	1	1
Delhi	1	1
Goa	1	1
Uttar Pradesh	1	1
Total	8	18

The processwise break up is as below:

	No. of licencees	In production/
Alcohol from tapioca	1	-
Amyloglucosidase	1	-
Baker's yeast	4	-
Bottling of toddy	1	-
Cashewapple liquor	3	-
Pectinolytic enzyme	4	2
Tonic wine	1	-
Wine and brandy from grapes	3	-
Total	18	2

A number of problems have been referred by the two units who are manufacturing pectinolytic enzyme. Some of the technical problems referred are bad odour of the product, economic viability not possible because of low yield, need to change machinery and equipment design, more concentrated product is desirable. Another factor that affects the industry is the Government's liberal import of enzyme. The imported product is cheaper hence it affects the market for the product.

The tables giving problems faced by licencees of different processes are given in annexure.

PROTEIN PRODUCTS

Totally 23 processes have been developed, of which 12 have been released to 22 industrial units. The statewise distribution is as below:

	Process released	Industrial licencees
	released	
Delhi	4	4
Karnataka	4	4
Maharashtra	3	77
Tamilnadu	2	2
Gujarat	2	2
Andhra Pradesh	2	2
Kerala	1	1
Total	12	22

The following table gives the processwise breakup.

	No. of licencees	In production/ Use
Bal Ahar	1	1
Bovite	1	-
Composite protein food	2	-
Dehulling of sesame seed	1	-
Energy food	1	1
Groundnut protein isolate	6	1
Infant food (milk based)	2	1
Miltone	1	1
Multipurpose food	1	1
Protein chewy candy	2	-
Water soluble calcium casinate	2	-
Weaning food	2	-
Total	22	6

Among the 12 processes released, 2 processes Bal-ahar and Miltone has been released to Government organisation - the Bal-ahar to Food Corporation of India and Miltone to Food and Nutrition Board. Though there was no response from these organisations it is understood that these products are being manufactured.

The problem faced by most of the units is the lack of market. This has been mentioned in the case of Multipurpose Food, protein chewy candy and composite protein foods. Since majority of the protein foods developed are new to the market, the market had to be developed for these products.

In the case of groundnut protein isolate the two type of licencees are one who has taken the process for manufacture of the protein isolate and other who has taken the process under secrecy agreement. Both have mentioned that equipments recommended were not suitable. Tata oil mills who are manufacturing the product has mentioned a number of problems - non technical in nature which are listed in the tables.

In the case of Multipurpose food and protein chewy candy it has been mentioned that the product needs improvements for better acceptability. Multipurpose food though developed with a view of school feeding and other mass feeding programmes; since the government has not given sufficient encouragement it is right now being sold through medical practitioners.

PLANTATION CROPS, SPICES AND ESSENTIAL OILS

Totally 25 processes have been developed, of which 13 have been released to 109 licencees. The statewise breakup is as below:

	Processes released	Industrial licencees
Karnataka	9	23
Tamilnadu	4	10
Maharashtra	5	10
Madhya Pradesh	4	8
Kerala	4	33
Andhra Pradesh	3	7
Total	13	109

More than 50% of the licencees are in Kerala and Karnataka.

The processwise break up is as below:

	No. of licencees	In production/ use
1. Buff coloured white pepper & dried green pepper	23	2
2. Cocoa butter and cocoa powder	1	1
3. Dehydrated green chillies	1	-
4. Garlic powder	16	2
5. Improving storage life of cashew kernels	9	-
6. Monsooning of cherry coffee	1	1
7. Mustard powder	3	1
8. Pectin and tart rate from tamarind pulp	2	-
9. Refined cocoa mass	3	1

10. Spice oils	7	-
11. Spice oleoresins	25	1
12. Tamarind concentrate	10	1
13. Tamarind powder	9	4
Total	109	13

It can be noted that majority of licencees are utilisers of two processes ie. buff coloured white pepper and dried green pepper and spice oleoresins. Almost all the utilisers of former being located in Kerala.

An overall view shows that the major problem faced by the Industry is the want of market. A number of problems connected with unsuitability of the process, difficulty in obtaining desired quality of the end product, unsuitability of machinery has also been mentioned by various industries. It may also be noted that majority of the products in spices group are export oriented to us.

Details of problem faced by the units are listed in tables.

OTHER PROCESSES

12 processes have been developed, of which the following processes have been released to 7 licencees.

Alluminium foil laminate

Baking powder formulation

Coffee adulteration testing kit

Canned drinking water

Emergency ration for life boats and rafts

Vitamin-E concentrate from wheat germ.

None of the processes are known to be in production.

The following tables gives the processes developed and that are released. It may be noted that the list of processes released does not include all the processes developed since a number of processes have been demonstrated or training was given on a number of processes which has not been recorded.

Processes developed

I

Animal products

Animal casings
Bacto-peptone from fish wastes
Canning of shrimps
Canning of oil, sardine, pomfret, mackerel, etc. in oil
Chicken steaks
Chitosan
Concentrated meat gravies
Corned beef
Cured smoke poultry
Curing of pork
Curried chicken
Dressed chicken
Egg albumen flakes
Egg coating oil
Egg powder
Egg shell powder
Egg washing powder
Farinaceous fish products
Fish meal and oil
Fish pickles
Fish protein concentrates
Frozen fish products
Freeze dried shrimps
Improved egg box/basket
Improved fish basket
Isinglass from fish bladder
Meat loaf

Processes released

II

Concentrated meat gravies
Corned beef
Egg albumen flakes
Egg coating oil
Egg powder
Egg washing powder
Fish meal and oil

Meat soup cubes

Meat tenderizers

Poultry feeds

Refining of sardine oil

Salt curing and drying of mackerel

Sausage sandwich bread, barbeque and tandoori from culled birds

Sausages

Separation of meat from inexpensive variety of fish and its utilisation in sausages, baked products, etc.

Shark fin rays

Silaging of fish waste

Tanners yolk

Thermal processed fish products

Use of chemicals for deodorization of vans

Beverage products (Non-alcoholic)

Cashew apple juice

Liquid fruits

Coffee based carbonated beverage

Coffee/tea whiteners

Cola flavour blend

Ginger cocktail

Honey based beverage

Groundnut milk/curd

Lactic and based beverages

Malted beverage

Miltone

Pan supari nectar

Orange and lime-lemon flavour blends.

Cashew apple juice blends

Cola flavour blend

Ginger cocktail

Honey based beverage

Liquid fruits

Malted beverage

Malted milk powder & allied products

Orange and lime-lemon flavour blends

Pan supari nectar

Processing of cereals, millets & legumes

Curing of paddy

Bisibele bath mix

Emergency bread

Instant mixes Dosai, Idli, Jamun, Jilebi and Vada

I

Harvesting index for paddy
Improvements in papads
Improved process for poha
Instant mix for chakli
Instant mix for dosa
Instant mix for jamun
Instant mix for jil.bi
Instant mix for vada
Instant rasam mix
Instant sambar mix
Maize based snack products
Malting of millets
Natural drying of paddy
Puliogare mix
Ready mix for snacks
Ragi based snacks
Ragi based weaning foods
Refined millet flours

II

Instant rasam and sambar mixes
Ragi-based weaning food

<u>Disinfestation processes</u>

Bacterial insecticides
Balooning technique for coffee
Durobase formulations
Durofume formulations
Durofume process
High molecular weight HDPE structure
Household insecticide
Lindane
Methyl bromide
Minifume tablets
Non-toxic insecticides
Pest proof emulsion for insect-proofing of gunny bags
Rat burrow fumigation
Revivification of gas mask canisters
Rodent control technique

Balooning process for storage of coffee
Durobase formulations
Durofume formulations
Household insecticide
Lindane
Methyl bromide
Pest-proof emulsion for insect proofing of gunny bags

I	II
Rodent specific bait	
Serial fumigation process	
X-factor (Technical)	
Equipment and Machinery	
Aflatoxin filter	Aflatoxin filter
Cardamom drier	Cashew kernel drier
Cashew kernel drier	Citrus juice extractor
Citrus juice extractor	Concentrator for tomato puree
Continuous heat sealer	Desiccated coconut drier
Drier for desiccated coconut	Fluidized bed drier
Improved spin-cooker/cooler	Ghee testing kit
Improved vacuum tester	Improved coffee filter
Leaf cup machine	Improved spin cooker/cooler
Maize mill	Improved vacuum tester
Mini rice mill	Leaf cup making machine
Modern dhal mill	Maize mill (including destoner)
Paddy crack detector	Mini rice mill
Paddy separator	Modern dhal mill
Parboiling unit	Parboiling tank
Pest-proofing machine	Rice bran stabiliser
Poultry dressing table	Tomato juice concentrator
Rice bran stabilizer	Tunnel drier
Semi-mechanised powder filler	Vacuum dr evaporator
Smoke house for fish	
Triple roller extractor	
Tunnel drier	
Vacuum evaporator	
Vegetable slicer	
Vinegar generator.	
Fruits and vegetables	
Antifungal paste	Fruit bars
Banana figs	Fruit juice powder
Banana chips	Mango cereal flakes
Cartons for banana	Mixed fruit jam

Cartons for oranges
Comminuted orange beverage base
Dehydrated raw mango slicer
Dehydration of vegetables
Fruit juices and concentrates
Fruit syrups and squashes
Fruit juice powder
Fruit jams
Fruit toffees
Fruit bars
Hot dip treatment for mango
Mango cereal flakes
Mushroom
Oil citrate & pectin from lime
Papain (Crude)
Papain (BP grade)
Papa in (IP grade)
Papain (Concentrate)
Pectin from pectinaceous material
Potato chips (fried)
Processing of litchi
Pickles and chutneys
Refrigerated storage of fruits & vegetables
Strained baby foods
Sun drying of grapes
Tomato products
Vegetable soup powder
Wax emulsion

Mushroom
Oil, citrate & pectin from lime
Papain (Crude & BP grade)
Papain (IP & Concentrate)
Pectin from pectinaceous materials
Wax emulsion

<u>Microbiology and Fermentation</u>

Alcohol from mahua
Alcohol from tapioca
Alpha amylase (fungal)
Amyloglucosidase (fungal)
Bakers' yeast (compressed & dry)
Brandy from banana

Alcohol from tapioca
Amyloglucosidase
Bakers yeast
Bottling of toddy
Cashew apple liquor
Pectinolytic enzyme

I

Glucose isomerase
Pectinase (fungal)
Proteinase (fungal)
Vinegar from pineapple waste
Wine and bra ndy from cashew apple
Wine and brandy from grapes

II

Tonic wine
Wine & brandy from grapes

Protein products

Balahar
Composite protein food
Dehulling of sesame seed
Edible groundnut flour
Edible mustard flour
Integrated processing of sesame seed
Edible soyabean flour
Energy food formulation
Guar meal beneficiation
Infant food (milk based)
Infant food (with vegetable protein)
Leaf protein concentrate
Maize based balahar
Malted beverage
Multipurpose food
Nutrobiscuits
Partially defatted groundnuts
Paushtik atta
Protein chewy candy
Protein isolate
Tapioca macaroni
Water soluble Cal.caseinate
Weaning food

Balahar
Bovite
Composite protein food
Dehulling of sesame seed
Energy food
Groundnut protein isolate
Infant food (milk-based)
Miltone
Multipurpose food
Protein chewy candy
Water soluble cal. caseinate
Weaning food

Plantation crops, spices & essential oils

Annato dye
Buff coloured white pepper and dehydrated green pepper
Cashewnut processing

Buff coloured white pepper and dried green pepper

Cocoa butter and cocoa powder

I

Cocoa beans, curing of
Coffee testing kit
Curing of turmeric
Dehydrated ginger
Dehydrated green chillies
Drying of red chillies
Fractionation of red chillies
Garlic powder
Green cardamom
Improved coffee filter
Improving the storage lif
of cashew kernels
Kokum concentrate
Monsooning of cherry coffee
Mustard powder
Natural food colourants
Processing of walnuts
Refined cocoa mass
Spice oils,
Spice oleoresins
Tamarind powder
Tamarind concentrate
Terpeneless citrus oils

Other processes

Aluminium foil laminates
Arecanut drying
Baking powder
Canned d rinking water
Canning of jamun
Canning of rasagolla
Desiccated coconut
Dipsol formulation
Ghee testing kit
Ice cream with vegetable proteins
Khoa and burfi
Silkworm pupae utilisation

II

Dehydrated green chillies
Garlic powder
Powder
Improving the storage life
of cashew kernels
Monsooning of cherry coffee
Mustard powder
Pectin and tartrate
from tamarind pulp
Refined cocoa mass
Spice oils
Spice oleoresins
Tamarind concentrate
Tamarind powder

Aluminium foil laminates
Baking powder formulations
Coffee adulterations
testing kit
Canned drinking water
Emergency ration for
life boats & rafts
Vitamin-E concentrate
from wheat germ.

Total Licencees - Distributed (Groupwise)

		Licencees	%
1.	Animal products	16	3.4
2.	Beverage products	26	5.6
3.	Processing of cereals/pulses	21	4.5
4.	Disinfestation process	26	5.6
5.	Equipment and machinery	172	37.0
6.	Fruits and vegetables	49	10.5
7.	Microbiology and fermentation	18	4.0
8.	Protein foods	22	4.7
9.	Plantation products	110	23.6
10.	Others	7	1.5
		467	100.0

Distribution of processes & licencees - Statewise

	No.of processes	No. of licencees	Response %
Andhra Pradesh	22	48	9.5
Assam	5	8	4.4
Bihar	5	9	0.6
Chandigarh	1	2	)
Delhi	15	17	5.7
Goa	2	2	1.3
Gujarat	10	18	4.4
Haryana	3	3	1.3
Himachal Pradesh	2	2	
Jammu & Kashmir	1	1	0.6
Karnataka	49	116	27.3
Kerala	19	48	7.6
Madhya Pradesh	12	19	4.4
Maharashtra	32	77	13.9
Manipur	1	1	-
Meghalaya	1	1	1.9
Mizoram	1	1	-
Orissa	3	33	-
Pondichery	1	1	3.2
Punjab	3		
Rajasthan	4	1	
Tamilnadu	23	59	
Uttar Pradesh	6	10	
West Bengal	8	9	
Foreign	3	3	
Total			100.0

Size of the Unit

Cottage scale	Small scale	Medium scale	Large scale	DGTD	Service Orgn.	Information NA/NR
2	62	3	3	8	15	58

Ownership

Proprietory	Partnership	Limited Co.	Public sector	N.A.
20	28	22	2	63

Number of employees - Licences

Employment upto (No.of persons)	10	11-20	21-30	31-50	>50	N.A.
No. of licencees	26	12	3	7	10	100

C.F.T.R.I. Licencees & Year of release

Year No. of units Areas	1956-60	1961-65	1966-70	1971-75	1976-80	Total
Animal products	Nil	Nil	5	2	9	16
Beverage products	1	6	Nil	2	16	25
Processes of cereal and pulses	Nil	1	4	2	14	21
Disinfestation	2	Nil	4	15	6	27
Equipment and machinery	4	Nil	1	2	165	172
Fruits & vegetables	1	2	7	10	29	49
Microbiology and fermentation	2	2	Nil	10	4	18
Protein foods	4	4	1	6	7	22
Plantation products	1	14	6	22	67	110
Others	1	1	1	4	-	7
Total	16	30	29	75	317	467

Processes and units which have gone into production*

	Category	No. of processes	No. of Units
1.	Animal products	4	6
2.	Beverage products	3	3
3.	Processing of cereals, millets and pulses	2	5
4.	Disinfestation processes	3	4
5.	Equipment & machinery	8	20
6.	Fruits & vegetables	3	4
7.	Microbiology & fermentation	1	2
8.	Protein products	6	6
9.	Plantation crops, spices and essential oils	9	13
		39	63

NSP*

Distribution of Process -

Animal Products - Statewise

State	Processes released	Industrial licencees
Total	7	16
Andhra Pradesh	3	4
Delhi	1	1
Karnataka	2	4
Kerala	2	2
Maharashtra	4	4
Punjab	1	2

Beverages products

State	Processes released	Industrial licencees
Total	9	26
Andhra Pradesh	2	2
Delhi	1	1
Gujarat	1	1
Karnataka	4	6
Kerala	1	3
Madhya Pradesh	2	2
Maharashtra	1	1
Tamil Nadu	6	9
West Bengal	1	1

A2

Cereals, Pulses and Millets - Statewise

State	Processes released	Industrial licencees
Total	3	21
Andhra Pradesh	1	1
Haryana	1	1
Jammu & Kashmir	1	1
Karnataka	3	10
Himachal Pradesh	1	1
Mahrashtra	2	3
Tamilnadu	1	4

Disinfestation - Statewise

State	Processes released	Industrial licencees
Total	7	27
Andhra Pradesh	2	2
Delhi	1	1
Gujarat	1	4
Karnataka	5	9
Maharashtra	2	2
Orissa	1	2
Tamilnadu	1	4
Uttar Pradesh	1	1
West Bengal	1	1

Equipment and Machinery - Statewise

State	Processes released	Industrial licencees
Total	20	172
Andhra Pradesh	4	18
Assam	3	7
Bihar	2	5
Chandigarh	2	2
Delhi	4	6
Goa	1	1
Gujarat	2	7
Haryana	2	2
Karnataka	10	45
Kerala	2	2
Madhya Pradesh	3	8
Maharashtra	8	29
Manipur	1	1
Orissa	1	1
Punjab	3	6
Tamilnadu	5	23
Uttar Pradesh	2	5
West Bengal	3	4
Foreign	1	1

Fruit and vegetables - Statewise

State	Processes released	Industrial licencees
Total	10	49
Andhra Pradesh	4	11
Gujarat	2	2
Karnataka	3	6
Kerala	2	3
Madhya Pradesh	1	1
Mahrashtra	4	18
Tamilnadu	4	5
Uttar Pradesh	1	2

Microbiology - Statewise

State	Processes released	Industrial licencees
Total	8	18
Andhra Pradesh	1	1
Delhi	1	1
Goa	1	1
Karnataka	5	8
Kerala	3	4
Tamilnadu	2	2
Uttar Pradesh	1	1

Protein Foods - Statewise

State	Processes released	Industrial licencees
Total	12	22
Andhra Pradesh	2	2
Delhi	4	4
Gujarat	2	2
Karnataka	4	4
Kerala	1	1
Maharashtra	3	7
Tamilnadu	2	2

Plantation crops spice and essential oils - Statewise

State	Processes released	Industrial licencees
Total	13	109
Andhra Pradesh	3	7
Assam	1	1
Bihar	2	4
Delhi	2	3
Gujarat	2	2
Himachal Pradesh	1	2
Karnataka	9	23
Kerala	4	33
Madhya Pradesh	4	8
Mahrashtra	5	10
Meghalaya	1	1
Mizoram	1	1
Orissa	1	1
Rajasthan	1	1
Tamilnadu	4	10
Nepal	1	1

Miscellaneous - Statewise

State	Processes released	Industrial licencees
Total	6	7
Delhi	1	1
Karnataka	1	1
Maharashtra	3	3
West Bengal	2	2

The following tables gives the problems technical, marketing and miscellaneous referred by the industrial units.

The problems faced and improvements suggested for each process have been listed in the tables.

Though it can be noticed that technology is not the major constraint in the case of many process certain improvements or suggestions by CFTRI to modify the technology could help the entrepreneur. Industrial units also have suggested that CFTRI should take active steps in promoting the products developed by CFTRI by referring their problems and suggesting the Government to give priority in Government purchase and in banning import of products that are indigenously manufactured and to help CFTRI licencees solve the problems.

Certain Government orders, regulations and adhoc policies which keep changing from time to time have affected a few units seriously.

ANIMAL PRODUCTS

Egg albumen flakes

* UNITS IN PRODUCTION

Problems

a. Technical:

1. The product has very few application, hence requires to extend the application by modification of the product.
2. Utilization of by-product is difficult. It has very low value.
3. Packaging problems
4. Difficult to maintain hygienic conditions

b. Marketing:

1. The product is too costly

c. Others:

1. Import of egg albumen flakes affect the Indian markets.
2. Power cut.

Addresses of units who have replied

*1. Radiant Industrial and Commercial Co.,
Ansa Industria l Estate, Saki-Vihar Road,
Sakinaka, Bombay - 400 072.

2. Egg Albumen Co., 22-10-197, Hill Fort Road,
Annapurna Villa, Khairatabad, Hyderabad - 500 004.

*3. Sarvjit Chemicals Pvt. Ltd., 29, Green Park, Ludhiana.

Egg powder

Problems

1. Technical : Product costing very high
2. International price very low, hence no market.

Addresses of units who have replied

*1. Foods and Inns Ltd., Devnar, Sion-Trombay Road,
Chembur, Bombay - 400 088.

Fish meal and oil

Problems

1. Technical: Screw process performance not satisfactory.
Double screw process preferred.
2. Market : No market
3. Others : Non-availability of raw materials.

Addresses of units who have replied

*1. Karnataka Fisheries Development Corpn. Ltd.,
Hoige Bazaar, Mangalore - 575 001.

*2. Karnataka Iron Works, Balmatta Road, Mangalore.

Concentrated meat gravies

Problems : Not referred

Addresses of units who have replied

*1. Meat Products of India Ltd., M.P.S. Meat Factory, Edayar (PO), Koothattukulam, Ernakulam Dist., Kerala.

Egg Coating Oil

Problems: Not referred

Addresses of units who have replied

1. Hardcase Engineering Works, Lalji Meghji Compound, M.G. Road, Secunderabad.

BEVERAGE PRODUCTS

Liquid fruits

Problems

a. Technical

1. To develop filter pad for longer usage
2. To reduce cost of enzyme treatment

b. Market

1. High cost of product, hence no market.

Addresses of units who have replied

*1. Bangoh Fruit Processing Industries, Manandawadi Road, Mysore - 570 008.

2. South India Research Institute (P) Ltd., Sirinagar, Vijayawada - 520 007.

3. Techno-Exim Pvt. Ltd., 31/489, T.D.Road, Cochin - 682 011.

4. S.S.Mehta, 256, Advaitha Ashram Road, Fairlands, Salem - 636 004.

Orange and lime/lemon flavour blends

Problems

a. Technical : Very low shelf-life.

Addresses of the units who have replied

*1. Sweeta Bottling, Souza building, Puttur - 574 201.

PROCESSING OF CEREALS, MILLETS AND PULSES

Instant Mixes
(Jamun, jilebi, vadai, dosai, idli)

Problems

a. Technical : Packaging costly

b. Marketing : No demand

Addresses of units who have replied

1. Allied Chemical Industries, 19B, Industrial Estate, Barzalla, Srinagar - 190 005.
2. T.S.R.Krishna Rao, 88-2, Bhavanipur Colony, Opp. Annapoorna Mandir, Indoor - 452 009.
3. Foods Fats Fertilizers Ltd., P.B.No.15, Tadepalligedam - 534 501, A.P.
4. Western India Bakers Pvt. Ltd., A.P.M.MAFCO Market Yard, At & P.O. Turbhe, New Bombay (Dist.Thane).

*5. Ramakrishna Dairy, Visweswarapuram, Bangalore-560004.

*6. Mysore Food Products, 598, Nazarbad, Post Box No.3, Mysore - 570 010.

*7. Gits Food Products, 20/1, Hadapsar Industrial Estate, Poona - 411 013.

Instant Sambar and Rasam Mix

Problems : Not referred.

Addresses of the units who have replied

*1. Bhavani Foods Pvt. Ltd., No. 426, 7th Cross, 1st Block, Jayanagar, Bangalore.

DISINFESTATION PROCESSES

Durofume

Problems: a. Technical:

1. Shelf-life cannot be guaranteed
2. Leakage
3. New device necessary to formulate NB and EDB mixture since it should not be mixed in cylinder as per explosive act.

b. Marketing :

1. Other fumigants are cheaper, hence lack of demand.

c. Others:

1. Filling licence necessary for explosive act.

Addresses of units who have replied

*1. C.P.Chemicals, Industrial Estate, Yadavagiri, Mysore.

Lindane

Problems

a. Technical : Less yield

b. Marketing : No demand and high cost

c. Others : 1. Non-availability of alcohol

2. Difficult to get insecticide board certificate from Government.

Addresses of units who have replied

1. Jaipal Udyog, 302, Akash Deep Building, Barakamba Road, New Delhi - 110 001.

2. Agro Stereo Isomer Chemical Industries, 3-6-658, Himayat Nagar, Hyderabad - 29.

*3. Mico Farm Chemicals Ltd., 6, Lingichetty St., Madras - 600 001.

EQUIPMENT AND MACHINERY

Citrus juice extractor

Problems

a. Technical

1. Low yield
2. Machine should suit varieties of fruits varying in size.

b. Others:

1. Import of such machine should not be allowed.
2. Power problem.

Addresses of units who have replied

*1. Mysore Precision Engineers, C-123/124,
Industrial Estate, Yadavigiri, Mysore-20.

Fluidized Bed Drier

Problems : Not referred

Addresses of units who have replied

1. Punjab Agricultural University, Ludhiana - 141 004.

Maize Mill with Destoner

Problems:

a. Technical : Translation of blue prints difficult.
Making prototype is costly.
Smaller capacity to be fabricated.

b. Marketing : No demand

c. Others : Power cut.

Addresses of the units who have replied

*1. Sidhivinayaka Machinery and Equipments, Sidvin House,
Swimmingpool Cross Road, Saraswathipuram, Mysore.

*2. Srinivasa Engineering Works,
960, Chamundeswari Road, Mysore.

3. Thermotech Industries, 60, Seshathai, 5th Main, Gokulam Road, Jayalakshmipuram, Mysore - 12.

4. Fertiplant Engg. Co. Pvt. Ltd., Jamunotry, 26th Road, Bandra, Bombay - 400 050.

5. Prestige Feed Mills, 32, 11C, New Palasia, Indore - 452 001.

6. B.N.Sikaria, C/o M/s K.P.Sikaria & Co., Sikaria House, Fancy Bazaar, Gauhati-781001, Assam.

Parboiling tank

Problems

a. Technical : Quality of rice not good

b. Marketing : No demand

c. Others : There is no premium on parboiling.

Addresses of the units who have replied

*1. Haryana Steel Fabricators, No.1, Industrial Area, Dabwali Road, Sirsa (Haryana) - 125 055.

2. Trade and Industry Pvt. Ltd., Tezpur - 784 001.

3. B.L.Sikaria, Sikaria House, Fancy Bazaar, Gauhati-1.

*4. Shri Chalthan Vibhag Khand Udyog Sahakari, Mandli Ltd., At P.O.Chalthan - 394 135, Palsana Taluk, Surat Dt.

Leaf Cup Making Machine

Problems

a. Technical

1. Functioning of machinery not up to satisfaction.
2. Fabrication of machinery a problem in the case of actual users.
3. Introduction of kerosene blower as an alternate heating system.
4. Development of different dye designs necessary.

b. Market : No market

c. Others : Financial problems

Addresses of units who have replied

1. Sahyadri Papers, Banavasi Road, Sirsi - 581 401.
2. Development Manager, APSSIDC Ltd., Parisrama Bhavanam, Hyderabad-500017.
3. Administrative Officer, Industrial Advisers, Malow Ali, P.O. Box 78, Jorhat - 785 001.
4. B.N.Mallappa, 1625, Kabir Road, Mysore.
5. J.N.Korgaohar, 24 E, Nagala Park, Kolhapur - 416 003.
6. Smt. Jyothi A.Adenwala, Near Ceat Tyre, Satpur, Nasik - 422 007.
7. The Secretary, Centre for Development of Rural Technology, Allahabad Polytechnic, Allahabad - 211 001.
8. * N.Kanayiram, 110, West Sandaipettai St., Madurai - 625 001.
9. Principal, Thiagarajar Polytechnic, P.B. No. 523, Salem - 363 005.
10. Marketing Manager, Gujarat State Forest Dev. Corpn. Ltd., Alkapuri , Vadodara-5.
11. The South Indian Dishes, Rangiya, N.F.Rly., P.O. Rangiya-781 365, Assam.

12. Sha kti Engineering Enterprises, Padukat, Nilleshwar, - 670 314.

13. Swastik Enterprises, No.4, 3rd St., Narayanadas Layout, Tatabad, Coimbatore-641 012.

14. Ahmedabad Guide, Fariawala Cha mbers 7, 2nd floor, Mirzapur Road, Ahmedabad - 380 001.

15. Baker & Co. Pvt. Ltd., Jagta Marg, Dr.E.Moses Road, Worli, Bombay - 400 018.

16. Managing Director, Manipur Small Industries Corpn. Ltd., Poona Bazaar, Imphal.

17. Singhbhum Institute of Technology Society, Burmanimes p.o., Jamshedpur - 831 007.

18. N.S.Suresh, General Merchant, Bus Stand, Nittum - 572 225, Cubbi Tq., Tumkur Dist.

19. Hari Om Industries, Bassi Puthanam, N.Rly, Punjab - 140 412.

20. Azeem Trading Co. Pvt. Ltd., Shanthi Nagar, V.P.Road, Borvili, Bombay - 400 092.

21. State Bank of Hyderabad, Gunfoundry, Hyderabad - 500 177.

*22. Nalanda Agro Works, C/o P.T.C., 2nd floor, Udyog Bhavan, East Gandhi Maidan, Patna-800004.

23. Centre of Science for Villages, Magan Sangrahalaya, Wardha - 442 001.

24. M.P.Virdi, Polytechnology Transfer Centre, A-Block, Guru Tegh Bahadur Complex, Roshanpura, Bhopal.

25. S.S.Mehta, Grassy Bank, Yercand-636601, T.N.

26. National Small Industries Co. Ltd., Industrial Estate, Okhala, New Delhi.

27. Principal, Bhailalthai & Bikhabhai, Polytechnic, Box No.3, Vallabh Vidyanagar, Pin 388 120, Dist. Kaira.

*28. M/s Anil & Co., 68, N.G.O.'s Colony, Rajendranagar, Mysore-570 007.

Mini Rice Mill

Problems

a. Technical

1. Design drawing should be available for different capacities.
2. Change from centrifugal sheller to rubber roll sheller as to avoid breakage in rice.

b. Others

1. Customers interested only in paddy sheller.

Addresses of units who have replied

1. XL-Equipments Pvt. Ltd., 13/1, Rasulpura, P.B.No. 1687, Secunderabad - 500003.

*2. General Engineering Co., Old Post Office Road, Udupi - 576 101, S.K.

3. National Engineering Co.(Madras) Pvt. Ltd., P.O.Box No.1616, Andhra Chamber Buildings, 272/273, Angappa Naick St., Madras - 600 001.

* 4. Sidhivinayaka Machinery and Equipments, Sidvin House, Swimming Pool Cross Road, Saraswathipuram, Mysore-570 020.

*5. Kohinoor Industries, MF-11, Industrial Estate, Yadavagiri, Mysore-570 020.

6. Chemical Construction Co.Pvt. Ltd., 29, Ring Road, Lajpatnagar IV, New Delhi - 110 024.

*7. Indian Foundry Works, Border Road, Near City Rly.Station, Ferozepore City - 152 002.

*8. M.G.Industries, G.T. Road, Batala - 143 505.

*9. DIW Precision Engg. Works, Vadkun Road, Dahanu Road - 401 602, Dist.Thane.

10. G.G.Dandekar Machine Works Ltd., Dandekarwadi, Bhiwandi - 421 302, Dist.Thane.

*11. Shri Durga Agencies, 98, Motibhawan, Collectorgunj, Kanpur - 208001.

12. Mysore Industries, 2336, 9th cross, Basaveshwara Road, Mysore-570 004.

*13. Mysore Precision Engineers, C-123/124, Industrial Estate, Yadavagiri, Mysore - 570020.

14. Foodmach, 35, Third Main, V.V.Mohalla, Mysore-2.

15. Goodwyn Industries Corpn. (India), Goodwyn House, 95 A, Shankarshet Road, Pune - 411 009.

16. Super Engineering Works, Howrah Anita Road, Dassnagar, Howrah - 711 005.

17. Sri Srinivasa Engg. Works, 960, Chamundeshwari Road, Mysore - 570 004.

18. Lakshmi Engineering Works, D.No.442, F-type-A, BHEL Township, Hyderabad - 500 032.

19. Binny Ltd., Engg. Division, Meenambakkam, P.O.Box No.1111, Madras - 600 061.

Double Cone Vacuum Drier

Problems : Not referred

Addresses of the units who have replied

*1. Peenya Engineering Industries, 492, Phase-IV, Peenya Industrial Area, Bangalore - 560 058.

Tunnel drier

Problems : Not referred.

Addresses of the units who have replied

*1. Western India Baker's Pvt. Ltd., A.P.M., MAFCO Market Yard, At & P.O. Turbha, New Bombay.

Modern Dhal Mill

Problems

a. Technical : 1. Air heater necessary
2. CFTRI Assistance needed to fabricate machinery.

b. Marketing : 1. Commercial utilisation difficult.

Addresses of units who have replied

1. Dispur Rice and Dhal Mills, Sikaria House, Fanaj Bazar, Gauhati - 1.

2. Sarvotech Engg. Pvt. Ltd., B-21/27, Commerce Centre, 2nd floor, Tardeo Road, Bombay - 34.

FRUITS AND VEGETABLES

Mushroom

Problems : Nil

Addresses of the units who have replied

*1. D.B.Ghorpade, P.O.Vidyanagar, Bangalore - 512 134.

Oil citrates and pectin from lime

Problems

a. Technical:

1. Low yield of pectin
2. Poor solubility of products
3. High ash content
4. Shelf-life of lime oil low

b. Others :

1. Alcohol allotment erratio
2. Liberal import of the product.

Addresses of units who have replied

*1. Southern Citrous Products Pvt.Ltd.,
No.9/192, Raja St., Gudur - 524 101.

Fruit Bar

Problems

a. Technical:

1. Bulk storage of pulp problem
2. Quality of product not good
3. Process does not suit climate
4. High price of end-product
5. Low shelf-life.

b. Market

1. Competition with small manufacturers, a problem.

c. Others

1. FPO restriction very firm on pulp storage.

Addresses of units who have replied

1. Foods & Fruits, Industrial Estate, Vishakapatnam-530007.

2. Delicacies and Delites, C/o Consumer and Industrial Products Marketing Co., Slap No.1, Tardeo Road, Bombay - 34.

Papain

Problems : Non-availability of raw materials

Tapping a problem

Addresses of units who have replied

1. V.J.Doshi, Post Aklaj, P.B.38, Sholapur Dist.413101, Maharashtra.

2. Papain Chemical Pvt. Ltd., Ooty-Mysore Road, Gundlupet, Mysore District.

Pectin from pectinaceous material

Problems

a. Technical: 1. Pectin grade should meet IP grade. Now getting only food grade.
2. Low yield of pectin.

b. Marketing: 1. No internal and external demand

c. Others: 1. Difficult to sell lime juice & cal.citrate
2. Government policy is fluctuating
3. Problem to get coal
4. Difficult to get alcohol

Addresses of the units who have replied

*1. Siva Pectin, 107, P.K.Mutt Road, R.A.Puram, Madras-28.

*2. Enz ochem Laboratories Ltd., P.O.Box 28, Yeola-423 401, Maharashtra.

3. M.P.Consultancy Organization Ltd., Gangothri, T.T.Nagar, Bhopal, M.P.

MICROBIOLOGY AND FERMENTATION

Alcohol from tapioca

Problems:

1. High cost of alcohol/to the product from molasses compared

Addresses of the units who have replied

1. Normandy Breweries and Distilleries,
   Ashok Nagar, Mangalore - 575 006.

Pectolytic enzyme

Problems

a. Technical:

1. Bad odour
2. Dilute nature of the product
3. Economically not viable.

b. Others:

1. The product is being imported.

Addresses of the units who have replied

*1. Mysozyme Industries, No.26, Food Industry Complex,
   Metagalli,
   Mysore - 16.

*2. Triton Chemicals,
   No.14, Food Industry Complex,
   Metagalli, Mysore-16.

3. Southern India Research Institute Pvt. Ltd.,
   Srinagar,
   Vijayawada - 520 007.

PROTEIN FOODS

Groundnut protein isolate

Problems:

a. Technical:

1. Equipment and machinery, specially centrifuges, equilibrator and rotary filter recommended by CFTRI had to be replaced and process changes had to be made.

2. Reduction of processing cost necessary.

b. Others:

1. Government policies

2. Storage control order - restricts the storage of groundnut when it is economical.

3. Restriction of interstate movements of groundnut has created scarcity of raw material and hence hike in price.

4. Under solvent extracted oil, deoiled meal and edible flour (control) order each buyer has to obtain registration number from Directorate of Vanaspathi which is impractical.

5. No policy is laid down on export of the product so it is neither banned nor permitted for exports.

6. Power cut and shortage of water supply.

Addresses of the units who have replied

*1. Tata Oil Mills Co. Ltd., Bombay House, Bruce St., Fort, Bombay - 1.

2. Servotech Engineers Pvt. Ltd., Commerce Centre, 1321/27, 2nd floor, Tardeo Road, Bombay - 400 034.

Composite Protein

Problems: Not referred

Market : No market for the product.

Addresses of units who have replied

1. Unichem Laboratories, 22, Bhulabai Desai Road, Bombay-8.

Infant food

Problems: Roller dried is less soluble & outdated process

Addresses of units who have replied

*1. Kaira Dist.Cooperative Milk Producers Union Ltd., Anand - 388 001, Gujarat.

2. Andhra Pradesh Dairy Dev.Corpn., Lalapet, Hyderabad-40.

Multipurpose food

Problems

a. Technical : Taste to be improved by adding flavour.

b. Market : Difficult to capture market.

Addresses of units who have replied

*1. Greenfield Drugs and Chemicals, Industrial Estate, Yadavagiri, Mysore-2.

PLANTATION CROPS SPICES AND ESSENTIAL OILS

Garlic powder(Improved)

Problems:

a. Technical:

1. Less yield
2. Colour and aroma of end product not satisfactory
3. 25 kg unit capacity not economical
4. High silica content in the product.

b. Marketing: No market

c. Others : Difficult to meet FPO specifications.

Addresses of units who have replied

*1. National Garlic Industries, 4269, Mohalla Chectawabu, Ramaganj, Jaipur - 302 001.

*2. Unique Garlic Products, C/o Kishan Chand Munnalal, Madoganj, Vidisha - 464 001.

3. Vermas Technical Services, Exhibition Road, Patna - 800 001.

4. Andhra Pradesh Small Scale Industrial Development Corporation, B-1-174, Fateh Maidan Road, Hyderabad - 500 004.

5. Dehumidified and Hydrolise Processing Pvt. Ltd., C/o Dhiraj Traders, 8, Havdi Plot, Rajkot - 360 004.

Tamarind powder

Problems

a. Technical

1. Some equipments are ill matched
2. Product should be in granular form and should dissolve easily.

b. Marketting : No demand

c. Govt. & Other problems:

1. Electricity
2. Multipoint sales tax
3. Export of tamarind to be banned.

PLANTATION CROPS SPICES AND ESSENTIAL OILS

Buff coloured white pepper and dried green pepper

Problems

a. Technical : Sulphur-di-oxide content beyond permissible limit.

b. Marketing : 1. No demand
2. Cheaper comparative product available overseas.

Addresses of units who have replied

*1. L.R.Rangalar and Sons Pvt. Ltd.,
P.O. Box 163, Calicut - 673 001.

* 2. Mermaid Foods, 6/113-C, Cannanore Road,
Calicut - 673 001.

3. Oriental Spices and Oils Pvt. Ltd.,
Pathanamthitta - 689 645.

4. Food Spectra, Ezhupunna,
Alleppy Dist. - 689 001.

5. Vijayapuram Social Service Society,
Vijayapuram, Bishop's House,
Kottayam - 686 001.

6. Consolidated Coffee Ltd.,
Pollibetta, S.Coorg Dist.571 215.

Addresses of units who have replied

*1. Veerabhadra Mudaliyar and Co., Santhepet, Mysore-1.

*2. Food Associates, No.45, 17th Cross, 11th Main, Maleswaram, Bangalore-55.

*3. Annapurneshwari Enterprises, 76, SBM Housing Colony, Hebbal, Bangalore-24.

*4. Sreeranga Foods, 208-209, Diwan Bahadur Road, Coimbatore - 641 002.

Tamarind concentrate

Problems

a. Technical

1. Evaporation is not continuous
2. Operation cost is too high
3. Product sampling in between operation is not possible
4. Extraction has to be 30° Brix for single operation which is difficult to obtain, hence equipments needs modification.

b. Market:

1. High price of the product, hence no demand.

Addresses of units who have replied

*1. Indian Forest Food Industries, Khatari Mansion, Inside Fort, Vidisha - 464 001.

2. Nectar Fruit Products Ltd., Berikai Road, Bagalur - 635 103.

Improving Storage life of Cashew Kernels

Problems : Not referred.

Addresses of units who have replied

1. N.Sundareswaran and Co., Importers and Exporters, Quilon.

2. Kerala Produce Exporting Co., Quilon - 695 001.

Vitamin G Concentrate from wheat germ

Problems : Not referred.

Addresses of Units who have replied

1. Ranboxy Laboratories, Pharma ceutical Division, Okhla, New Delhi - 110 020.

Spice Oleoresins

Problems

a. Technical

1. Fabrication of machinery
2. Maintaining quality

b. Marketing :

1. No market

c. Others:

1. Non-availability of ethyl alcohol quota
2. Non-availability of diesel
3. Power cut.

Addresses of units who have replied

*1. Chillies Ex port House Pvt. Ltd., 1972,
35, MC Chidambaranadar St., Virudhunagar - 626 001.

2. Spicex Chemicals Pvt. Ltd.,
No.100/2, Bhanumiah Road, Mysore - 570 001.

3. Meghalaya Essential Oils & Chemicals Ltd.,
Room 33, Meghalaya Additional Secretariat Bldg.,
Shillong - 793 003, Meghalaya.

4. Oriental Spicex and Oils Pvt. Ltd.,
Pathanamthitta - 689 645.

5. Mizoram Small Industries Development Corpn. Ltd.,
Aizawal.

6. Ahluwalia Industries Ltd., Mohan Singh Buildings,
Cannaught Lane, New Delhi - 110 001.

7. NAFED of India, Sapna Building,
54, East of Kailash, P.B.No. 3580,
New Delhi - 110 024.

8. Biologicall Evans Ltd., 18/1 & 3, Azambad,
Hyderabad - 500 020.

9. Tunga Gingers, Lashkar Mohalla,
Shimoga - 577 201.

OTHER PROCESSES

Vitamin-C concentrate from Wheat germ

Problem : Not referred

Addresses of units who have replied

Ranboxy Laboratories,
Pharmaceutical Division,
Okhla, New Delhi - 110 020.

REPORT OF

TECHNOLOGY STATUS SURVEY

(CFTRI Licencees)

Industrial Development & Consultancy Services

CENTRAL FOOD TECHNOLOGICAL
RESEARCH INSTITUTE
MYSORE-13, INDIA